

## PROJECT DESCRIPTION

### GENERAL

THIS PROJECT INVOLVES THE INSTALLATION OF A NEW TRAFFIC CONTROL SIGNAL AT THE INTERSECTION OF BALLENGER CREEK PIKE AND THE NORTH BUS EXIT OF TUSCARORA HIGH SCHOOL IN FREDERICK COUNTY. A BASE MOUNTED CABINET, STREET LIGHTING, PAVEMENT MARKINGS AND SIGNS WILL BE INSTALLED AT THE INTERSECTION. BALLENGER CREEK PIKE IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

### INTERSECTION OPERATION

THE INTERSECTION SHALL OPERATE IN A NEMA (3) THREE PHASE, FULL- TRAFFIC- ACTUATED MODE, WITH A PUSHBUTTON ACTUATED PEDESTRIAN MOVEMENT TO CROSS THE NORTH LEG OF BALLENGER CREEK PIKE. A NEMA EIGHT- PHASE, FULL-TRAFFIC-ACTUATED CONTROLLER HOUSED IN A SIZE '6' BASE-MOUNTED CABINET WITH ALL NECESSARY EQUIPMENT FOR AN UNDERGROUND FEED AT BALLENGER CREEK PIKE AT TUSCARORA HIGH SCHOOL NORTH BUS EXIT. UNDERGROUND FEED BY ALLEGHENY POWER COMPANY.

### EQUIPMENT LISTS

#### A. EQUIPMENT TO BE SUPPLIED BY THE STATE HIGHWAY ADMINISTRATION (SHA).

ITEM	QUANTITY	DESCRIPTION
9000	1 EA	[UPDATED] (CONT/CAB/ADD) DETECTOR RACK POWER SUPPLY
9000	1 EA	(CONT/CAB/ADD) DETECTOR AMPLIFIER 4-CH RACK MT
9000	1 EA	(CONT/CAB/ADD) DETECTOR RACK POWER SUPPLY
9000	1 EA	[UPDATED] 4 CHANNEL DETECTOR AMPLIFIER
9000	1 EA	CABINET W/ TELEMETRY, SIZE 6
9000	1 EA	CONTROLLER ASC II W/ TELEMETRY
60	SF	[UPDATED] SHEET ALUMINUM SIGN
1	EA	M95-1 (MD 351) (VAR.X 24") MAST ARM MOUNTED
1	EA	D-3(1) (Ballenger Creek Pike) (VAR.X16") MAST ARM MOUNTED
1	EA	R3-2 (No Left Turn) (30"x30") MAST ARM MOUNTED
2	EA	W3-3 (New Signal Ahead) (36"x36") GROUND MOUNTED
1	EA	R5-1(DO NOT ENTER) (30"x30") GROUND MOUNTED

### EQUIPMENT LISTS (cont.)

#### B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR.

ITEM	QUANTITY	DESCRIPTION
1001	2 EA	Maintenance of Traffic
2002	3 CY	Test Pit Excavation
5003	184 LF	Removal of Existing Permanent Pavement Line Markings - Any Width
5005	355 LF	F & I 12" Heat Applied White Permanent Preformed Thermoplastic Pavement Markings
5006	65 LF	F & I 24" Heat Applied White Permanent Preformed Thermoplastic Pavement Markings
6004	6 SF	F & I 4" Concrete Sidewalk
8001	11 CY	F & I Concrete Foundation
8002	4 EA	F & I 12" Ped Sig Head Section
8018	2 EA	F & I Ped Pole (Any Size)
8019	1 EA	Remove & Dispose Material & Equipment Per Assignment
8029	66 LF	F & I Wood Sign Supports 4" x 4"
8031	300 LF	F & I No. 6 AWG Stranded Bare Copper Ground Wire
8033	30 LF	F & I 1" Electrical Conduit - Galvanized Sleeve
8037	140 LF	F & I 3" Schedule 80 Rigid PVC Conduit-Bored
8038	175 LF	F & I 4" Schedule 80 Rigid PVC Conduit-Bored
8039	1200 LF	F & I 2" Schedule 80 Rigid PVC Conduit-Trenched
8040	650 LF	F & I 3" Schedule 80 Rigid PVC Conduit-Trenched
8041	75 LF	F & I 4" Schedule 80 Rigid PVC Conduit-Trenched
8046	1 EA	F & I Metered Service Pedestal
8048	60 LF	F & I Electrical Cable 1-Conductor No. 4 AWG-THHN/THWN
8052	2 EA	F & I Noninvasive Detector, 500' Lead In Cable
8054	9 EA	F & I Electrical Handhole
8056	66 SF	Install Ground Mounted Sign
8057	32 SF	Install Overhead Sign
8063	1 EA	F & I Steel Pole With A Single 38' Mast Arm
8066	1 EA	F & I Steel Pole With Twin 50' And 60' Mast Arms
8071	2 EA	F & I 250 Watt High Pressure Sodium Lamp And Luminaire
8075	4 EA	F & I Ground Rod - 3/4" Diameter x 10' Length
8077	21 EA	F & I 12" Vehicular Traffic Signal Head Section
8082	200 LF	F & I Electrical Cable - 2 Conductor (Aluminum Shielded)
8083	175 LF	F & I Electrical Cable - 2 Conductor (No. 14 AWG)
8085	430 LF	F & I Electrical Cable - 5 Conductor (No. 14 AWG)
8086	740 LF	F & I Electrical Cable - 7 Conductor (No. 14 AWG)
8087	270 LF	F & I Electrical Cable - 2 Conductor (No. 12 AWG) TC
8088	900 LF	F & I Loop Wire Encased In Flexible Tubing (No. 14 AWG)
8089	245 LF	F & I Saw Cut For Signal (Loop Detector)
8090	2 EA	F & I Pushbutton And Sign
8091	2 EA	F & I 15' Lighting Arm On Signal Structure
8096	1 EA	Install Controller And Cabinet - Base Mount
8099-A	2 EA	F & I 16" 1-Way LED Countdown Pedestrian Signal

## MAINTENANCE OF TRAFFIC

THE FOLLOWING TRAFFIC CONTROL STANDARDS SHALL BE REFERENCED FOR THE PROJECT.

STANDARD NO. MD-104.00 - 104.00-30  
STANDARD NO. MD-104.31-01 (FLAGGING OPERATION)  
STANDARD NO. MD-104.33-01 (SHOULDER WORK)  
STANDARD NO. MD-104.35 (LANE SHIFT)  
STANDARD NO. MD-104.32-01 (INTERSECTION FLAGGING OPERATION)

### PROJECT CONTACTS

THE CONTACT PERSONS FOR SHA ARE AS FOLLOWS:

MR. ROBERT FISHER  
DISTRICT ENGINEER  
PHONE: (301) 624-8140

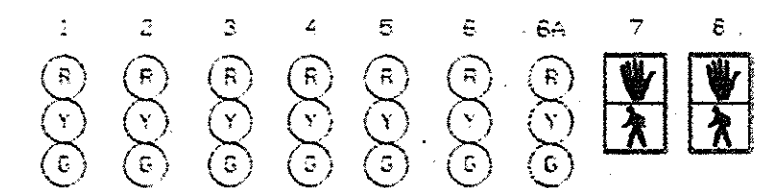
MR. JOHN CONCANNON  
ASSISTANT DISTRICT ENGINEER - TRAFFIC  
PHONE: (301) 624-8141

MR. DAVE COYNE  
ACTING ASSISTANT DISTRICT ENGINEER - MAINTENANCE  
PHONE: (410) 624-8140

MS. ANDREA ABEND  
ACTING DISTRICT UTILITIES ENGINEER  
PHONE: (310) 624-8116

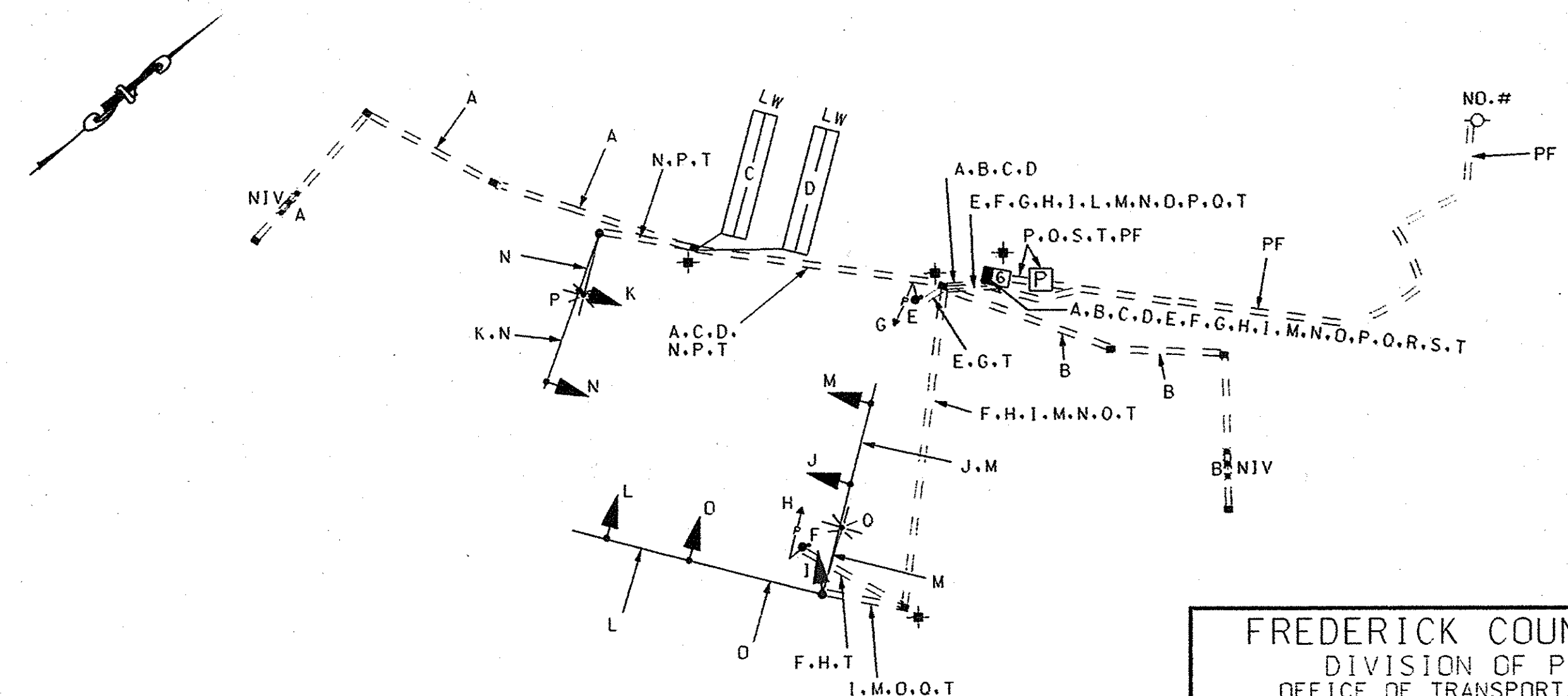
MR. RICHARD L. DAFF, SR.  
CHIEF, TRAFFIC OPERATIONS DIVISION  
PHONE: (410) 787-7630

## PHASE CHART



Phase 2 & 6	G	E	G	G	R	R	R	DW	DW	
2 & 6 Change	Y	Y	Y	Y	R	R	R	DW	DW	←
PHASE 4	R	R	R	R	G	G	G	DW	DW	→
4 Change	R	R	R	R	Y	Y	Y	DW	DW	↓
ALT Phase 4	R	R	R	R	G	G	G	KK	KK	↑
PED Clearance	R	R	R	R	G	G	G	FL/DW	FL/DW	↕
ALT 4 Change	R	R	R	R	Y	Y	Y	DW	DW	↕
Fashing	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	DARK	DARK	↕
Operation										↕

## WIRING DIAGRAM



### WIRING KEY

- A.B - NON-INVASIVE PROBE LEAD-IN
- C.D - 2 CONDUCTOR (ALUMINUM SHIELDED) ELECTRICAL CABLE
- E.F - 2 CONDUCTOR (NO. 14 AWG)
- G-L - 5 CONDUCTOR (NO. 14 AWG)
- M.N.O - 7 CONDUCTOR (NO. 14 AWG)
- P.O. - 2 CONDUCTOR TRAY CABLE (NO. 12 AWG)
- R - 3 WIRES (NO. 4 AWG) FOR TRAFFIC SIGNAL ELECTRICAL SERVICE
- T - STRANDED BARE COPPER GROUND WIRE (NO. 6 AWG)
- NIV - NON-INVASIVE PROBE SET
- LW - LOOP WIRE (NO. 14 A.W.G.)
- PF - PROPOSED UNDERGROUND FEED-BY POTOMAC ELECTRIC POWER COMPANY
- - PROPOSED METER AND PEDESTAL
- ★ - GROUND ROD

FREDERICK COUNTY, MARYLAND  
DIVISION OF PUBLIC WORKS  
OFFICE OF TRANSPORTATION ENGINEERING  
FREDERICK, MARYLAND

THIS MODIFICATION DESIGNED BY:

DESIGNED BY \_\_\_\_\_ DATE \_\_\_\_\_  
DRAWN BY \_\_\_\_\_ SCALE \_\_\_\_\_  
CHECKED BY \_\_\_\_\_

\* BAI PERSONNEL

APPROVED: \_\_\_\_\_  
DIVISION OF PUBLIC WORKS, DIRECTOR

APPROVED: \_\_\_\_\_  
DEPARTMENT OF HIGHWAYS AND TRANSPORTATION, HEAD

APPROVED: \_\_\_\_\_  
OFFICE OF TRANSPORTATION ENGINEERING, ENGINEERING MANAGER

STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
TRAFFIC ENGINEERING DESIGN DIVISION

MD 351(BALLENGER CREEK PIKE)  
TUSCARORA HIGH SCHOOL N. EX

### GENERAL INFORMATION SHEET

SCALE 1"= 20' DATE 04/04/2005 CONTRACT NO. \_\_\_\_\_

DESIGNED BY M.A. MEARS COUNTY FREDERICK

DRAWN BY M.A. MEARS LOGMILE \_\_\_\_\_

CHECKED BY RJM T.I.M.S. NO. \_\_\_\_\_

F.A.P. NO. \_\_\_\_\_ TOD NO. \_\_\_\_\_

DRAWING NO. SG-2 OF SG-2 SHEET NO. 6 OF 6

PLOTTED: #DATE#  
FILE: #FILE#

BAI

BRUDIS & ASSOCIATES, INC.  
CONSULTING ENGINEERS

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COLUMBIA, MARYLAND 21045  
410-884-3607 410-884-3605(FAX)